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Urban Social Sustainability Contributing Factors in Kuala Lumpur Streets

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Abstract

This study aims to identify contributing factors for urban social sustainability in small-scale built environment units in a Southeast Asian city. A self-administered questionnaire has been administered on a sample of 227 street users patronizing vibrant streets located in the city center of Kuala Lumpur. Through conducting factor analysis, nine constructs including quality of place, participation and accessibility, legibility, adaptability, place attachment, street amenity, food and economic services, heritage and local culture and permeability have been extracted. This study can be used by urban planners and designers to plan and make decisions for creating more socially successful and sustainable places in cities.

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Keywords: Social sustainability; small-scale built environment unit; Asian street; Kuala Lumpur

1. Introduction

Sustainability has become the pervasive goal of urban planning (Yung, Chan & Xu, 2011), during last few decades (Dempsey et al., 2011). Among the three ubiquitously quoted dimensions of sustainability, priorities have been given to environment and economic sustainability, while social sustainability have been largely neglected (Woodcraft et al., 2011, Manzi et al., 2010) or even been viewed as social implications for environmental dimension

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(Littig and Griessler 2005). Only after the year 2000, a significance of social sustainability is widely acknowledged as an integral part of sustainability that should be distinctively debated (Dempsey et al., 2011; McKenzie 2004). The concept is increasingly used by academics and practitioners in different ways for addressing issues on how society should be planned and developed in both developed or developing countries.

Among those who work on this concept, academicians try to theorize this dynamic and multifaceted concept in relation to individuals, society, and physical environments. However, from policy or practical perspectives, the concept is used to frame decisions about making policies or interventions in cities and their social structures while concerning sustainability and resilience of cities (Woodcraft, 2012). Despite the frequent applications of the concept, it is widely accepted that social sustainability is still under-theorized and vague in definition, criteria, and measurement system until now (Landorf, 2011; Colantonio, 2010). The majority of debates on this emerging concept have been frequently extended within urban related disciplines (Davidson, 2009). Based on the existing literature, social sustainability of small-scale built environment units has been identified as an existing gap which needs to be precisely considered, reviewed and examined (Secher, 2014; Ghahramanpouri et al., 2013). It results from the fact that the majority of studies on this topic conducted on urban units of larger scales such as neighborhoods, the urban region/district, and city or country level. Public spaces, either in the forms of streets or squares best represents such small-scale built environment units. This paper begins with a discourse on the concept through reviewing definitions, operational themes and succeeding factors suggested in the literature. Subsequently, it focuses on streets as the primary public spaces in each city (Mehta, 2014), and identifies social sustainability contributing factors in small scale built environment units through surveying street users in Kuala Lumpur, which is a vibrant Southeast Asian city.

2. Determinants of social sustainability theoretical definitions

To date, there is a little consensus over the definition of social sustainability, and many varied definitions have been proposed (Manzi et al., 2010). Such variation can be explained by following reasons extracted from previous works (Laguna, 2014; Åhman, 2013; Colantonio 2010). First, is about concept intangibility in compare to more tangible and measurable concept of environmental and economical sustainability. Therefore, some authors (e.g. Littig and Griessler, 2005) use other social concepts/theories, instead of defining the concept itself. Second, is about multi-disciplinary approaches of the concept that result in a challenging conceptual confusion and a lack of normative meaning for social sustainability, as scholars from various disciplines are conceptualizing it in a variety of ways; Third, is about multifaceted nature of social sustainability that causes existence of several definitions depending on varying scale, scopes and perspectives. Fourth, is related to dynamic characteristics of the concept, as it is associated with people and society and their changing needs and conditions. Because of this reason, in some cases an author may suggested two definitions or improve the one (s)he had provided earlier. Finally, as it is agreed that the concept is very much context dependent, and the local perspective is significantly emphasized, it is obvious that varied definitions suggested of different localities.

Reviewing existing definitions of social sustainability- suggested within various built environment disciplines, revealed that there are common characteristics in these definitions. For this study, various definitions suggested by Polese and Stren (2000), Chiu (2003), McKenzie (2004), Bradley and Lee (2005), Littig and Griessler (2005), Magis and Shinn (2009), Colantonio (2010), Karuppannan and Sivam (2011), Bacon et al. (2012), Woodcraft et al, (2011), Laguna (2014) have been reviewed and three main referred characteristics of social sustainability extracted. The characteristics together with three definitions (one example from each category), are shown in Table 1. These attributes are elaborated in following paragraphs.

Table 1. Common characteristics of social sustainability definitions.

Characteristics	Definition
Future focus	Social Sustainability concerns the ability of human beings of every generation to not merely survive, but to thrive (Magis & Shinn, 2009).
Satisfaction of needs	A condition where an extended set of basic needs are met for all residents regardless of their race/ethnicity, age, religion, gender, socioeconomic status and/or level of ability and the highest possible level of social inclusion and participation in community life is promoted (Laguna, 2014).
Socially cohesive and physically integrated urban unit	It describes the extent to which a neighborhood supports individual and collective well-being. Social sustainability combines design of the physical environment with a focus on how people live and use the spaces, relate to each other and function as a community. It is enhanced by development which provides the right infrastructure to support a strong social and cultural life, opportunities for people to get involved, and scope for the place and the community to evolve (Bacon et al., 2012).

Future focus (or Long-term viability and promotion): It is indicated that social sustainability is primarily about valuing and protecting positive aspects of cultures (McKenzie, 2004) and promoting current conditions– encompassing individuals, communities and societies, and also ensuring the qualities for generations to come. It focuses on continuing ability of an urban setting where survivals of human beings in addition to community thriving conditions are guaranteed for generations for a long time.

Satisfaction of needs (basic needs and access to resources): It relates to both human and society. Relevant to individuals, it follows Maslow's hierarchy of needs, and covers physiological (food, water, health and safety), social (relationships, confidence and mutual respect) and self-actualization (creativity and morality) levels (Åhman, 2013). On the other hand, it is about provided opportunities and available resources in society (community level).

Socially cohesive and physically integrated urban unit: It is about relational aspects of society but also on individual and personal aspects. The significance of inter-relationships between social and physical worlds is highly elaborated in the current extensive social sustainability literature. In many existing definitions of social sustainability, physical setting is considered as being conducive to social cohabitation, socially integrated and promoting well-being and quality of life of the diverse group. Such communities are described as well balanced and well connected that can fulfill a wide range of those living or working there (Bacon et al., 2012).

3. Operational themes of social sustainability

It is generally agreed that social sustainability is a multidimensional concept that addresses the social goals of sustainability (Dempsey et al., 2011). During the last two decades, several frameworks for urban social sustainability have been suggested by a sociologist, urban planners, urban designers, geographers, policy makers. Through their studies, a wide variety of topics including urban form and density, layout and townscape, quality of life, well-being, social equity/justice, social cohesion, social exclusion/inclusion, social interaction, social and political participation, democracy and governance, rights, needs, diversity, work and education, have been discussed as underlying themes of this concept (Colantonio, 2010; Dempsey et al., 2011; Littig and Griesler 2005; Chiu 2003; Polese and Stren 2000). There are overall agreements on some themes in most frameworks (Weingaertner and Moberg, 2011). Some of the most frequent suggestions of social sustainability main themes, through which social sustainability is operationalised, are as follows:

Equity: includes equity of access to key services (including health, education, transport, housing and recreation), sufficient resources and opportunities, as well as equity between generations (future generations will not be disadvantaged by activities of current generation) (Landorf, 2011; Bradley and Lee, 2005; McKenzie, 2004).

Quality of life: It is the sum of factors that contribute to the social, environmental and economic well-being of citizens. It covers aspects such as being and doing well, happiness and satisfaction. At the same time, well-being or in broad term quality of life, forms social sustainability and is a major outcome of it (Weingaertner and Moberg, 2011; Bradley and Lee, 2005).

Pride, sense of place and identity: It is about people's perceptions of a certain place. It mainly relates to a positive sense of attachment, dependent and identity that people feel about the place they live (Dempsey et al., 2011).

Social inclusion and coherence: It is about right and opportunities to participate in community and interact with other members of the community. It encompasses cohabitation of culturally and socially diverse groups in societies where people involve in a wide variety of social activities and preventing social exclusion (Sedaghatnia et al., 2015, Colantonio, 2010; Chiue, 2003; Polese and Stren, 2000)

Democracy/ governance: it is about an engaged governance and effective participation of citizens and communities in policy/ decision-making processes in the community they belong to (Cuthill, 2010).

4. Succeeding factors of social sustainability

The influences of physical and non-physical attributes on promoting social sustainability have been identified in previous studies. But due to the extensive applications of social sustainability concept in built environment disciplines, there is an increasing trend among researchers to view the concept from an urban design perspective and identify related aspects that contribute to this concept (Chan and Lee, 2008). Studies, in which social sustainability concept is viewed with an urban design lens, usually refer to the physical aspects while evaluating the impacts of built environment design on this concept (Secher, 2014). Those studies consider local initiatives, strategies and guidelines and usually apply prominent urban design theories- suggested by scholars such as Jan Gehl and Jan Jacobs, as underpinnings for their selection of the criteria. This section presents significant factors relevant to urban design highlighted in the previous works.

Urban social sustainability initially has been studied in the urban and rural contexts of developed nations. The most prominent example is the one adopted for the city of Vancouver in the year 2005 as this framework encompasses definitions and relevant detailed policies. Accordingly, basic needs besides individual and social capitals are defined as determinants of social sustainability in Vancouver. These components are underpinned by equity, security, adaptability and social inclusion and interaction- as the four guiding principles of social sustainability (Bradley and Lee, 2006). In Australia, Porta and Renne (2005) studied the social sustainability of small-scale built environment units (i.e. street) utilizing formal indicator concept. For their measurement, they used eight urban fabric indicators including permeability/ street connectivity; land use diversity, accessibility, public/ private realm, natural surveillance, employment density, number of buildings and number of lots. Moreover, Chan and Lee (2008) conducted a research on social sustainability of urban renewal projects in Hong Kong and suggested a list of six significant factors affecting social sustainability including preservation of local characteristics, townscape design, accessibility, provision of social infrastructure, availability of job opportunities and availability of job opportunities.

On the other hand, there are also contributing factors suggested in studies of social sustainability, more recently conducted in developing and less developed countries. In order to scrutinize the relationship between social sustainability and urban density in a developing country, Dave (2009) studied seven characteristics including facilities and amenities, living space, health, community spirit and social interaction, sense of safety and neighbourhood as a place to live. In another study, Karuppannan and Sivam (2011) adapted Ewing's walkability framework and studied design parameters including accessibility and permeability, open space, safety, legibility, aesthetic and social infrastructure in relation to social sustainability indicators. Ahmed (2012) also utilized eight criteria comprising layout quality, integration of public spaces, pedestrianisation, healthy environment, safety, privacy, vitality and social interaction and participatory decision making, while researching social sustainability in an Emirati city.

5. Urban social sustainability of urban places

It was determined in previous sections that social sustainability literature is fragmented (Laguna, 2014; Weingaertner & Moberg 2011) and chaotic (Vallanccce et al, 2011) and different studies present specific interpretation of the concept or influencing factors.

Among the studies conducted on the social sustainability of Asian urban contexts, with their distinctive features, studies that focused on urban design aspects of public spaces are rare. Current studies usually focus on other topics such as urban renewal - e.g. in Hong Kong (Chan and Lee, 2008), urban form, housing and community planning- e.g. in Malaysia (Wan Mohd Rani, 2012) or UAE (Ahmed, 2012) or India (Dave, 2011). Furthermore, urban places and small-scale urban units- in general, and streets- in particular, have been neglected in social sustainability discourses (Ghahramanpouri et al., 2013). Streets are among important urban elements that involve much of public life in each city. The importance of socially activating street is crucial for people- who use such spaces, and the sustainability of our cities as well (Sivam and Karuppannan, 2013). In this regards, lively streets have been always desired, as they offer greater opportunities for optional and social activities (Ghahramanpouri et al., 2012; Francis, 1991). Therefore, identifying relevant attributes of the concept is the major focus of this section.

This study considers previous frameworks suggested for social sustainability and the principal urban design theories and texts relevant to public spaces, including but not limited to DETR and CABE (2002), Gehl (2010), Mehta (2014), and suggests a significant factors affecting urban social sustainability of public spaces. Following figure presents a diagram indicating influential urban social sustainability dimensions in public spaces such as connectivity, legibility, sense of place, preservation of local characteristics, safety, comfort, public services, social amenities, inclusiveness, and diversity.

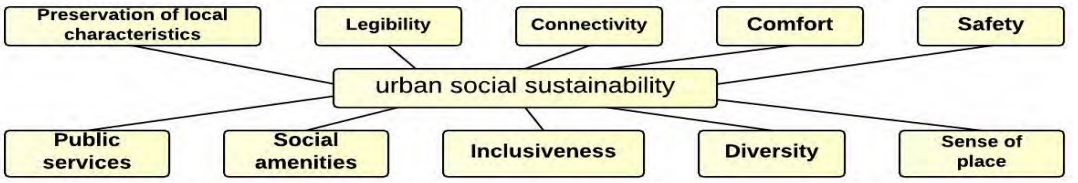

Fig. 1. Significant factors affecting social sustainability of urban places.

6. Research methodology

The research framework of this study, which is based on the literature review, questionnaire survey and subsequent statistical analyzes, is presented in Fig. 1.

6.1. Literature review

This paper initially utilized literature review to make the background knowledge about the social sustainability concept. It helps to identify the characteristics of the concept in three categories- definitions, operational themes, and succeeding factors, presented in existing relevant studies. These finding viewed from and merged with principal theories and underpinning relevant to urban design, and then a list including aspects that may influence urban social sustainability in public spaces was prepared.

6.2. Questionnaire survey

This study used survey method to identify the level of importance of each aforementioned aspect among users of urban spaces including residents, visitors, and workers. For that purpose, measurement items relevant to each dimension of the framework, extracted, and their validity and reliability verified through expert validation and pilot study. For addressing content validity, a draft of the questionnaire prepared and reviewed by a panel of experts. They were selected from both academics and practitioners, including an urban designer, an urban planner, two architects, two urban design lecturers, and two landscape lecturers. They suggested minor adaptations in some cases and a little modification about items. Finally, a pilot questionnaire prepared from the revised items and a group (n=30) of Kuala Lumpur public spaces users were surveyed to test the applicability of the instrument through assessing its clarity and readability. Then a self-administered questionnaire with 42-items was finalizes and prepared for the main study.

During January 2014, the main survey carried out in the public spaces of two vibrant streets namely Jalan Tuanku Abdul Rahman- JTAR, and Jalan Petaling- JP. Because of the highest concentration of pedestrians and visitors, these two study areas are known as main shopping streets in the city centre of Kuala Lumpur. These areas have been also dedicated to several urban revitalization initiatives as they have significant traditional characteristics (Ujang, 2012). Users, including residents, visitors, and workers were requested to evaluate the street environments based on the given items. Among the total surveyed respondents, 227 valid responds collected for further analysis.

6.3. Data analysis

Data analysis in this study includes descriptive statistics, factor analysis, and reliability analysis. Data was being entered into Statistical Package for Social Science (SPSS) for Windows version 16.

7. Results

7.1. Respondents' profile

Among a total of 227 respondents, 153 (67.4%) respondents participated in the survey from JTAR in compare to 74 (32.6%) for JP. The gender distribution of respondents is 103 (45.4%) men and 124 (54.6%) female. From the ethnical background, a majority of respondents were Malay (75.8%), and it was followed by Chinese (16.3%), Indians (5.3%), and 2.6% belongs to other ethnicities. Overall, 180 (79.3%) respondents were visitors of these two streets while the rest (20.7%) were working there.

7.2. Principle component analysis

In this study, principal component analysis using varimax rotation was applied to determine the urban social sustainability contributing factors relevant to public spaces in Kuala Lumpur. To ensure that data is proper for conducting factor analysis, a series of statistical assumptions were examined. Barlett's test of sphericity ($p = 0.000$) and the Kaiser-Meyor Olkin measure of sampling adequacy ($KMO = 0.903$) indicated that the data set was appropriate for conducting factor analysis.

For determining the number of factors that should be retained, this study refers to what was suggested by Pallant (2011), including a) factors with eigenvalues greater than 1.0; b) examining scree plot; c) factor loading greater than 0.4; and d) factors with at least 3 items. Therefore, factor analysis generated nine factors explaining 62.826% of the total variance. These factors include 1) Quality of place, 2) Participation and accessibility, 3) Legibility, 4) Adaptability, 5) Place attachment, 6) Street amenity, 7) Food and economic services, 8) Heritage & local culture, and 9) Permeability respectively.

7.3. Reliability analysis

In the next stage, internal consistency, which determines instrument reliability, was assessed through Cronbach's alpha method. The results revealed that a reliability coefficient for the entire instrument was $\alpha = 0.95$ while the accepted rate is $\alpha \geq 0.7$. Cronbach's alpha for all factors determined. They are varied from 0.726 to 0.877 (higher than the acceptable rate of 0.7). Therefore, it is concluded that the scale has a high level of reliability. Factor loading, percent of the total variance, and Cronbach's alpha coefficients (α) explained by each factor are summarized in Table 2.

Table 2. Results of the factor analysis of social sustainability variables.

	No of items	% of Variance	Cumulative % of Variance	Cronbach's alpha (α)
Factor 1: Quality of place	8	27.214	27.214	.877
Factor 2: Participation and accessibility	5	8.101	35.316	.804
Factor 3: Legibility	5	5.475	40.791	.808
Factor 4: Adaptability	6	4.559	45.350	.795
Factor 5: Place attachment	4	4.491	49.841	.844
Factor 6: Street amenity	4	3.839	53.680	.793
Factor 7: Food and economic services	3	3.292	56.971	.783
Factor 8: Heritage & local culture	3	3.128	60.099	.815
Factor 9: Permeability	4	2.727	62.826	.726

8. Discussion

In this study, the influential factors of urban social sustainability of public spaces in Kuala Lumpur were identified through factor analysis. Accordingly, it was found that quality of place, participation and accessibility, legibility, adaptability, place attachment, street amenity, food and economic services, heritage & local culture, and permeability respectively are the important factors that influence urban social sustainability in streets. The explanations of nine identified factors are interpreted in the following sections. Regarding the results of factor analysis, quality of place appeared to be the most important predictor of social sustainability in streets as the largest variance (27.21%) was accounted for this factor. Eight items are loaded on this construct involving a sense of security and safety (from both crime and traffic), comfort and enjoyment. It intends to fulfill the street users' psychological needs about physical aspects of urban space. The first item with the highest factor loading of 0.778 in this group is related to safety and security at night. This result is in accordance with previous studies in which they have highlighted the significant influence of place quality on the sociability of public spaces and urban social sustainability (Mateo-Babiano and Ieda, 2007; Gehl, 2010).

The second factor obtained from factor analysis refers to users' participation and accessibility in public spaces. This construct explained 8.10 percent of the overall variance and it encompasses freedom of choices and provision of opportunities to socialize and participate in activities as well as access to building and places for users of varied ability and conditions. In this factor, the first item with the highest factor loading of 0.655 is "Participation in the variety of activities on this street".

Legibility is a dynamic process of using spatial ability and navigational awareness to reach one's destination. The result of this study supported this notion and demonstrated that legibility is the third most important factor influencing urban social sustainability in streets. Within legibility construct, attractive views, clarity of Vista, and visual richness of the street are considered the most important variables. In this factor, the first item with the highest factor loading of 0.769 is "Well-defined places and buildings with obvious functions and entrances". This finding supports the contention of Chan and Lee (2008) study who emphasized the importance of legibility on social sustainability. Legibility help spaces to function well and pleasant for living or visiting purpose (DETR and CABE, 2000).

The fourth factor, which stimulates social sustainability in public spaces, was adaptability. In this factor, the first item with the highest factor loading of 0.765 is related to the adaptability of a street in responding different needs of users and future conditions. The findings are in a good agreement with Bacon et al. (2012).The next factor is place attachment that is defined as a form of connection or bonding between a person and the setting. This construct explained 4.49 percent of the overall variance. The important contribution of place attachment has been confirmed by numerous studies. For instance, Hartanti and Martokusumo (2012) highlight the influential role of the street as an

element of urban identity. In a society responsive to social sustainability, creating a sense of place is centered on social well-being.

The next three factors are related to street amenity, food and economic services and heritage and local culture of it. Numerous studies have supported these findings and emphasized the importance of these aspects on social sustainability of streets. For example, Chan and Lee (2008) suggested the provision of facilities and amenities for groups with special conditions including the disabled, elderly, and children. Access to proper food and drink (e.g. in the restaurant, street café, food stalls) is very important in the sociability of Streets in an Asian City. In line with this, Åhman (2013) and Landorf (2011), relate this factor with equity and basic need. Regarding heritage construct, preservation of what remain from the past and maintenance of existing good conditions are considered important variables that influence social sustainability in a public spaces. These findings are in an agreement with Chan and Lee (2008).

Finally, the last factor affecting urban social sustainability is street permeability. This factor comprises of four items that are about urban layout and networks of a connected street (visual and physical) and movement for pedestrians and other users of the areas. In this factor, the first item with the highest factor loading of 0.760 is "Visual and physical access and movement towards the destinations are feasible". This result corroborates the ideas of Hartanti and Martokusumo (2012), Porta and Renne (2005) who emphasized the significant of permeability on social sustainability.

9. Conclusion

As mentioned earlier, previous studies on urban social sustainability have mainly examined its non-physical aspects at neighborhood, city or country level. This study investigated a relatively understudied topic in studies pertaining to urban social sustainability in small-scale built environment units, concerning urban design perspective. Therefore, this paper aimed to identify the most important factors predicting the urban social sustainability of public spaces in a Southeast Asian city. Evaluating urban design characteristics of public spaces and their impact on social sustainability contribute local authorities, urban planners, and designers to provide more socially successful and sustainable places in cities. On the other hand, conducting such studies within Asian urban contexts, with their unique socio-spatial characteristics can contribute to what was highlighted in previous studies conducted in western or other developing context. Similar studies are advised to be conducted in other Southeast Asian Cities aiming at determining social sustainability contributing factors in urban streets of this region. When this social sustainability contributing factors are well acknowledged, monitored, and improved in the current and future public spaces, it could be expected that such spaces could better serve their users of all kind and conditions for their wide range social and functional needs. In addition, in such environments, there could be more social relations at different levels (from eye contact to long time activities participation).

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References

Ahmed, K. G. (2012). Urban social sustainability: A study of the Emirati local communities in Al Ain. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 5*(1), 41-66.

Åhman, H. (2013). Social sustainability–society at the intersection of development and maintenance. *Local Environment, 18*(10), 1153-1166.

Bradley, S., & Lee, M. (2005). *A social development plan for the city of Vancouver: Moving towards social sustainability.* Vancouver: CoV (City of Vancouver).

Chiu, R. L. H. (2003). Sustainable development: A new perspective for housing development. Paper presented at the *3d National Housing Conference.*

Colantonio, A. (2010). Urban social sustainability themes and assessment methods. *Proceedings of the Institution of Civil Engineers: Urban Design and Planning, 163*(2), 79-88.

Cuthill, M. (2010). Strengthening the „social'in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in Australia. *Sustainable Development, 18*(6), 362-373.

Dave, S. (2009). Neighbourhood density and social sustainability in cities of developing countries. *Sustainable Development, 19*(3), 189-205.

Davidson, M. (2009). Social sustainability: A potential for politics? *Local Environment, 14*(7), 607-619.

DETR, & CABE. (2000). *By design: Urban design in the planning system towards better practice*. Thomas Telford.

Dempsey, N., Bramley, G., Power, S., & Brown, C. (2011). The social dimension of sustainable development: Defining urban social sustainability. *Sustainable Development, 19*(5), 289-300.

Bacon, N., Cochrane, D., & Woodcraft, S. (2012) *Creating strong communities: How to measure the social sustainability of new housing developments: Developing the framework.* London: The Berkeley Group.

Ghahramanpouri, A., Lamit, H., & Sedaghatnia, S. (2012). Behavioral observation of human stationary and sustained activities in pedestrian priority Streets of Johor Bahru. *Journal of Construction in Developing Countries, 17*(2), 105-116.

Ghahramanpouri, A., Lamit, H., & Sedaghatnia, S. (2013). Urban social sustainability trends in research literature. *Asian Social Science, 9*(4), 185- 193.

Gehl, J. (2010). *Cities for people*. Washington: Island Press

Hartanti, N. B., & Martokusumo, W. (2012). Streetscape connectivity and the making of urban identity. Paper presented at the *Arte-Polis 4 International Conference- Creative Connectivity and the Making of Place: Living Smart by Design*.

Karuppannan, S., & Sivam, A. (2011). Social sustainability and neighbourhood design: an investigation of residents' satisfaction in Delhi. *Local Environment, 16*(9), 849-870.

Landorf, C. (2011). Evaluating social sustainability in historic urban environments. *International Journal of Heritage Studies, 17*(5), 463-477.

Littig, B., & Griessler, E. (2005). Social sustainability: a catchword between political pragmatism and social theory. *International Journal of Sustainable Development, 8*(1), 65-79.

Magis, K., & Shinn, C. (2009). Emergent themes of social sustainability. In J. Dillard, Dujon, V., & King, M.C. (Ed.), *Understanding the Social Aspect of Sustainability* (pp. 1-16). New York, NY: Routledge.

Manzi, T., Lucas, K., & Lloyd-Jones, T. (2010). *Social sustainability in urban areas: Communities, connectivity and the urban fabric*. Earthscan/James & James.

Mateo-Babiano, & Hitoshi IEDA, D. (2007). Street space sustainability in Asia: The role of the Asian pedestrian and street culture. *Journal of the Eastern Asia Society for Transportation Studies, 7*.

McKenzie, S. (2004). *Social sustainability: Towards some definitions*. Hawke Research Institute, University of South Australia.

Mehta, V. (2014). Evaluating public space. *Journal of Urban Design, 19*(1), 53-88.

Polese, M., & Stren, R. (2000). *The social sustainability of cities: Diversity and the management of change*.

Porta, S., & Renne, J. L. (2005). Linking urban design to sustainability: Formal indicators of social urban sustainability field research in Perth, Western Australia. *Urban Design International, 10*(1), 51-64.

Wan Mohd Rani, W. N. M. (2012). *Modelling the relationship between urban form and social sustainability in Malaysian cities: Access to local services and public facilities.* PhD thesis, Heriot-Watt University.

Secher, L. K. (2014). *Measuring social sustainability in the small-scale built environment.* Université Libre de Bruxelles UNICA, UNICA Euromaster in Urban Studies 4Cities.

Sedaghatnia, S., Lamit, H., Abdullah, A. S., & Ghahramanpouri, A. (2015). Experience of social inclusion among students in University Campuses of Malaysia. *Procedia-Social and Behavioral Sciences, 170*, 89-98.

Ujang, N. (2012). Place attachment and continuity of urban place identity. *Procedia-Social and Behavioral Sciences, 49*, 156-167.

Weingaertner, C., & Moberg, Å. (2011). Exploring social sustainability: Learning from perspectives on urban development and companies and products. *Sustainable Development*.

Woodcraft, S., Hackett, T., & Caistor-Arendar, L. (2011). *Design for social sustainability: A framework for creating thriving communities*. London: The Young Foundation.

Woodcraft, S. (2012). Social sustainability and new communities: Moving from concept to practice in the UK. *Procedia-Social and Behavioral Sciences, 68*, 29-42.